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Canadian Atlantic Fisheries
Scientific Advisory Committee

Comité scientifique consultatif des
pêches canadiennes dans l'Atlantique

CAFSAC Research Document 89/35

CSCPCA Document de recherche 89/35

Summary of Catch Statistics by Subarea and Assessment Unit for the Northern Labrador Arctic Charr Fishery in 1988

by

J. B. Dempson and M. Shears
Science Branch
Department of Fisheries and Oceans
P. O. Box 5667
St. John's, Newfoundland A1C 5X1

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Abstract

Catch and effort statistics for the northern Labrador Arctic charr fishery in 1988 are summarized. Total northern Labrador landings of 89 t were 17% lower than 1987 landings and 52% below the previous 10-year mean of 185 t. Within the Nain Fishing Region, approximately 73% of the total allowable catch for the three assessment units (Voisey, Nain, and Okak) was obtained. These assessment units contributed 94% of the total catch of Arctic charr in the Nain Region during 1988. Effort dropped by 12% from last year in the Nain Fishing Region, but has declined by approximately 50% since 1981. In addition to some evidence suggesting an overall reduction in population biomass in recent years, the decline in fishing effort is the single most important factor associated with the decreased landings in comparison with earlier years. A major increase in fishing effort in conjunction with an expansion of the fishery into northern fiord subareas will be required in order to achieve average catch levels recorded during the past 10 years.

Résumé

On présente un sommaire des statistiques sur les prises et l'effort relatif à la pêche de l'omble chevalier dans le nord du Labrador en 1988. Les débarquements totaux pour cette région, soit 89 t, ont été inférieurs de 17 % à ceux de 1987 et de 52 % à la moyenne des dix dernières années (185 t). Dans la zone de pêche de la baie Nain, on a capturé environ 73 % du total des prises admissibles pour les trois unités d'évaluation (baies Voisey, Nain et Okak). Les prises obtenues dans ces unités représentaient 94 % des prises totales d'omble chevalier capturées dans la région de la baie Nain en 1988, où l'effort a chuté de 12 % depuis l'an dernier et d'environ 50 % depuis 1981. Outre que certains signes semblent révéler une baisse générale de la biomasse, l'effort de pêche a diminué et c'est là la cause la plus importante de la baisse des débarquements par rapport aux années antérieures. Il convient d'accroître considérablement l'effort de pêche et d'étendre la pêche aux fjords des sous-zones du nord si l'on veut atteindre à nouveau les niveaux moyens de prises des dix dernières années.

Introduction

The commercial fishery for anadromous Arctic charr (Salvelinus alpinus) in the northern Labrador region began over 100 years ago (LeDrew 1984). Throughout this period the fishery has fluctuated markedly in response to market conditions, success of the northern cod fishery, and a change from a pickled catch to a fresh frozen product (LeDrew 1984). In recent years, fluctuations in catches have occurred as a result of the periodic expansion of the fishery (1981, 1982, and 1984) into northern fiord subareas, and as a result of changes in fishing effort associated with the availability of other sources of employment in the northern Labrador region and, to some extent, with the impact of severe environmental conditions (ice).

Continuous records of commercial landings of anadromous Arctic charr from the northern Labrador coast are available since 1944. Catch statistics from the Nain and Makkovik Fishing Regions, and from subareas within the Nain Fishing Region (Fig. 1) exist since 1974. From 1977 to 1982 more than 200 $t \cdot y^{-1}$ of Arctic charr were caught in northern Labrador but during the past five years (1984-88) annual landings have averaged only 120 t. The highest landings on record were 252 t in 1981, while the lowest during the past 30 years were 54 t in 1975. The expansion of the fishery in 1981 and 1982 resulted in increased catches and in general higher catch per unit of effort. Since then, however, there has been a significant decline in fishing effort and, correspondingly, in commercial landings. A previous report (Dempson 1988) indicated that a substantial increase in effort in conjunction with expansion of the fishery into the northern fiord subareas would be required in order for catches to reach previous levels. This did not occur in 1988.

This paper summarizes catch statistics for the 1988 fishery and updates previous reports (Dempson 1982, 1988; LeDrew and Dempson 1982; Dempson et al. 1985, 1986, 1987) which have examined landings in the commercial fishery.

Methods

Information on the commercial landings of Arctic charr in Labrador was obtained through purchase slips prepared by Program Coordination and Economics Branch of the Department of Fisheries and Oceans and processed by Salmon and Charr Section of the Freshwater and Anadromous Fish Division. Purchase slips were issued to buyers and were filled out at the time of catch receipt. Information requested included the name of the fisherman, license number, area where fish were caught, date, number of nets used, weight of fish landed, and total number of fish caught. Landed catches were converted to round weight (in kilograms) using the conversion factor: gutted head-on weight x 1.22 = round weight (Dempson 1984). Catch per unit effort estimates were derived following the method initiated by Coady and Best (1976) and are expressed in terms of kilograms per person-week fished.

Estimates of ice concentration along the northern Labrador coast were obtained from ice charts produced by Atmospheric Environment Service, Ice Forecasting Central, Ottawa. The area of ice was determined by week within the area defined between 55°N and 60°N latitude inside of a line running northwest from 55°00′N, 59°00′W to 60°00′N, 63°00′W (Fig. 1).

Results and Discussion

Total northern Labrador landings

Figure 2 illustrates the commercial landings of Arctic charr from 1944 to 1988. Also shown are the landings from the Nain and Makkovik Fishing Regions since 1974. During the past 15 years, the Nain Region produced about 85% of the total northern Labrador catch of Arctic charr averaging 142 $t \cdot y^{-1}$ (1974-88) with a coefficient of variation (C.V.) of 38%. Landings in 1988 totaled 89 t and were 17% lower than the previous year and 52% below the previous 10-year mean (185 t, 1978-87) (Table 1). Individually, landings in the Nain Fishing Region of 74 t were 24% lower than in 1987 and 53% below the previous 10-year mean (157 t, 1978-87), while effort declined by 12% from last year. The highest landings in the Nain Region occurred in 1981 and were 231 t, of which 30% of the total came largely from the northern fiord subareas of Hebron and Saglek. Since then catch has declined by 68% with a decrease in effort of almost 50%. The number of licensed fishermen in the Nain Region has fallen from a high of 142 in 1979 to 63 in 1988.

Charr landings from the Makkovik Region in 1988 were 15 t, up by 49% from 1987, but still 47% lower than the previous 10-year average (28 t, 1978-87). While Arctic charr populations are generally considered to be somewhat localized (Dempson and Kristofferson 1987), it is interesting to note that there is a statistically significant relationship between landings of charr in the Makkovik Fishing Region and those from the Nain Fishing Region ($r=0.63$, $P=0.011$, $df=13$). This may suggest that factors influencing the overall production of charr, and those affecting the relative fishing success (i.e. influence of environmental factors) could be common to both regions. To date information from tag recaptures of Arctic charr tagged and released in various subareas of the Nain Region (N recaptures = 2641, 1974-88) does not support the intermixing of populations between the two regions.

An attempt at a directed fishery for Arctic charr using 114 mm mesh gill nets in the area from Kanairiktok Bay (55°10′N, 60°05′W) to Big Bay (55°43′N, 60°35′W), from June 15 to July 15, 1988, yielded limited results. Few 114 mm mesh nets were obtained in time for the fishery and measurements from only 105 fish were provided. The mean fork length of these fish was 57.3 cm (range 47-71 cm).

Catch and effort data - Nain Fishing Region assessment unit summary

Appendix 1 provides an updated summary of catch and effort statistics for all subareas within the Nain Fishing Region from 1974 to 1988. These subareas form component parts of larger assessment or stock units. The trend for increasing catches of charr from the 'offshore' zones of the Nain and Voisey units relative to earlier years, while the opposite occurs for the Okak unit. Landings of Arctic charr in the Nain assessment unit represented 52% of the overall catch from the Nain Fishing Region in 1988, while the Voisey unit and Okak unit contributed 19% and 24% of the catch respectively.

Table 2 summarizes catch and effort data for the Voisey, Nain, and Okak assessment units from 1974 to 1988 while Figure 3 illustrates the trend in catch and TAC over time. With respect to the Voisey assessment unit, the

highest catches occurred during the late 1970s as did the highest catch per unit of effort (CUE) (Fig. 4). Landings in 1988 were 14.0 t, a decrease of 34% from 1987 when the total allowable catch (TAC) was exceeded. Effort however, decreased by 49% with CUE up by 29% to 270 kg·person-week^{-1}. Approximately 83% of the TAC was taken in 1988.

Landings from the Nain assessment unit totaled 38 t, 81% of the TAC but 17% below the 1987 catch. Effort was up by 15% over the previous year but CUE decreased by 27% similar to levels recorded from 1983 to 1985 (Fig. 4). Despite the decline in CUE in 1988, it has not varied greatly over the years averaging 210 kg·person-week^{-1} with a C.V. of 18%. This was the third successive year that more than 50% of the catch was taken in the offshore zone. Tikkoatokak Bay, where in 1978 more than 55 t were caught with an effort level of 147, had only 2 t of charr caught in 1988 with a total of 12 person-weeks of fishing effort, virtually all of it after the 10th of August.

Landings from the Okak assessment unit totaled 17 t, 56% of the TAC for this unit, and were 11% below the 1987 catch. Effort was essentially the same as in 1987 but CUE dropped by 13%. Within Okak Bay itself, the CUE was actually up by 28% over 1987.

Ice conditions along the northern Labrador coast were again quite severe in 1988 (Table 3). Still, the single most important factor associated with the decreased landings is the decline in fishing effort. The current amount of effort has the potential to obtain the present TAC for the three stock units but a higher catch success (CUE) would be required. In order to attain levels of commercial landings recorded in previous years, a major increase in effort is required in conjunction with an expansion of the fishery into the northern fiord subareas. When the increase in costs for boats, motors, fuel, and nets over the past ten years is compared with the increase in the price paid to commercial fishermen for Arctic charr and the inability to obtain new salmon licenses, it is understandable why fewer people are continuing to fish and why fewer still are entering the fishery.

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Table 1. Summary of northern Labrador Arctic charr landings (kg round) by fishing region, 1974-88.

	Nain Fishing Region				Makkovik Fishing Region			
Year	Catch	No. of fishermen	Fathoms of gear licensed	Catch as % of total	Catch	No. of fishermen	Fathoms of gear licensed	Total catch
1974	120,414	66		81	28,133			148,547
1975	44,118	85		82	9,542			53,660
1976	134,898	101		90	15,645			150,543
1977	186,165	128		88	24,205			210,370
1978	213,915	131	21,340	86	34,387	149	29,300	248,302
1979	175,263	142	21,320	82	37,693	110	21,225	212,956
1980	167,991	128	23,960	83	35,561	154	30,635	203,552
1981	231,221	122	21,700	92	20,733	154	30,990	251,954
1982	203,012	118	23,600	84	39,163	141	28,200	242,175
1983	149,732	119	24,400	84	29,100	148	29,600	178,832
1984	123,045	115	23,000	83	24,792	147	29,400	147,837
1985	107,120	95	19,000	76	33,945*	132	26,400	141,065
1986	99,963	79	15,800	88	13,888	109	21,800	113,851
1987	97,379	72	14,400	91	9,965	130	26,000	107,344
1988	74,010	63	12,600	83	14,819	120	24,000	88,829

*Includes 6,788 from spring fishery in Postville area.

Table 2. Catch and effort statistics for the Voisey, Nain, and Okak assessment units from 1974 to 1988. Quota area catch (QAC) refers to the landings from those subareas specifically under TAC regulation only prior to the derivation of assessment units in 1986 (1985 for Voisey).

Assessment unit	Year														
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Voisey															
TAC[1]						22,500	22,500	16,100	16,100	16,100	16,100	23,400	20,000	17,000	17,000
QAC						21,880	11,557	16,325	2,688	2,953	8,113				
Catch	29,180	3,727	14,652	24,108	36,991	40,590	19,694	23,810	13,309	25,593	20,873	15,648	16,655	21,242	14,037
Effort			57	75	102	116	82	90	60	80	101	57	82	101	52
C/E			257	321	363	350	240	265	222	320	207	275	203	210	270
% Offshore	31	94	21	9	11	47	42	33	45	89	62	91	82	41	60
Unit as % of Nain Region Total	24	8	11	13	17	23	12	10	7	17	17	15	17	22	19
Nain															
TAC[2]						61,000	61,000	37,160	43,660	51,000	43,200	30,500	43,000	47,000	47,000
QAC						52,832	50,176	37,223	39,119	19,102	29,063	36,019			
Catch	37,745	33,830	53,313	76,255	73,763	66,844	75,055	65,632	55,617	51,202	38,900	41,158	37,095	45,872	38,295
Effort			196	291	314	336	390	278	235	289	244	252	185	200	229
C/E			272	262	235	199	192	236	237	177	159	163	201	229	167
% Offshore	18	8	5	7	4	18	30	24	22	34	37	48	56	61	62
Unit as % of Nain Region Total	31	77	40	41	34	38	45	28	27	34	32	38	37	47	52
Okak															
TAC[3]								27,300	27,300	21,000	27,000	27,000	42,000	43,000	31,000
QAC								11,049	9,031	30,732	13,864	24,746			
Catch	46,891	5,057	25,338	42,392	76,024	43,261	49,035	47,541	34,171	48,978	18,146	33,261	28,896	19,649	17,450
Effort			148	243	352	283	253	202	186	286	94	208	172	134	136
C/E			171	174	216	153	194	235	184	171	193	160	168	147	128
% Offshore	27	53	30	37	54	41	66	78	75	39	25	26	30	20	28
Unit as % of Nain Region Total	39	11	19	23	36	25	29	21	17	33	15	31	29	20	24

[1]TAC applied only to Voisey Bay subarea for 1979 to 1984.

[2]TAC applied only to Anaktalik Bay and Tikkoatokak Bay for 1979 to 1983 (1983 also includes 5 t for Nain Bay) but includes an offshore component for 1984 to 1985.

[3]TAC applied only to Okak Bay subarea for 1981 to 1985.

Table 3. Summary of the area of ice coverage (square kilometers) along the Labrador coast between 55° and 60° latitude, 1979-88.

Week	Year									
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
June 11-17	28,056	43,304	43,304	43,304	43,304	23,380	43,304	22,045	43,304	42,536
June 18-24	35,646	7,590	25,345	43,304	43,304	43,304	43,304	23,606	33,972	43,304
June 25-1	6,370	6,912	13,012	41,745	43,304	34,290	32,632	28,093	40,897	38,809
July 2-8	15,993	0	0	13,893	6,912	32,054	30,785	8,584	35,464	40,235
July 9-15	20,737	0	0	2,711	19,449	31,716	26,475	5,853	23,892	13,317
July 16-22	2,575	0	0	542	22,364	28,869	24,218	195	18,478	12,619
July 23-29	1,220	0	0	407	22,228	26,497	14,161	0	1,494	381
July 30-5	0	0	0	609	11,317	1,694	2,258	0	0	0
Total	110,597	57,806	81,661	146,515	212,182	221,804	217,137	88,376	197,481	191,201

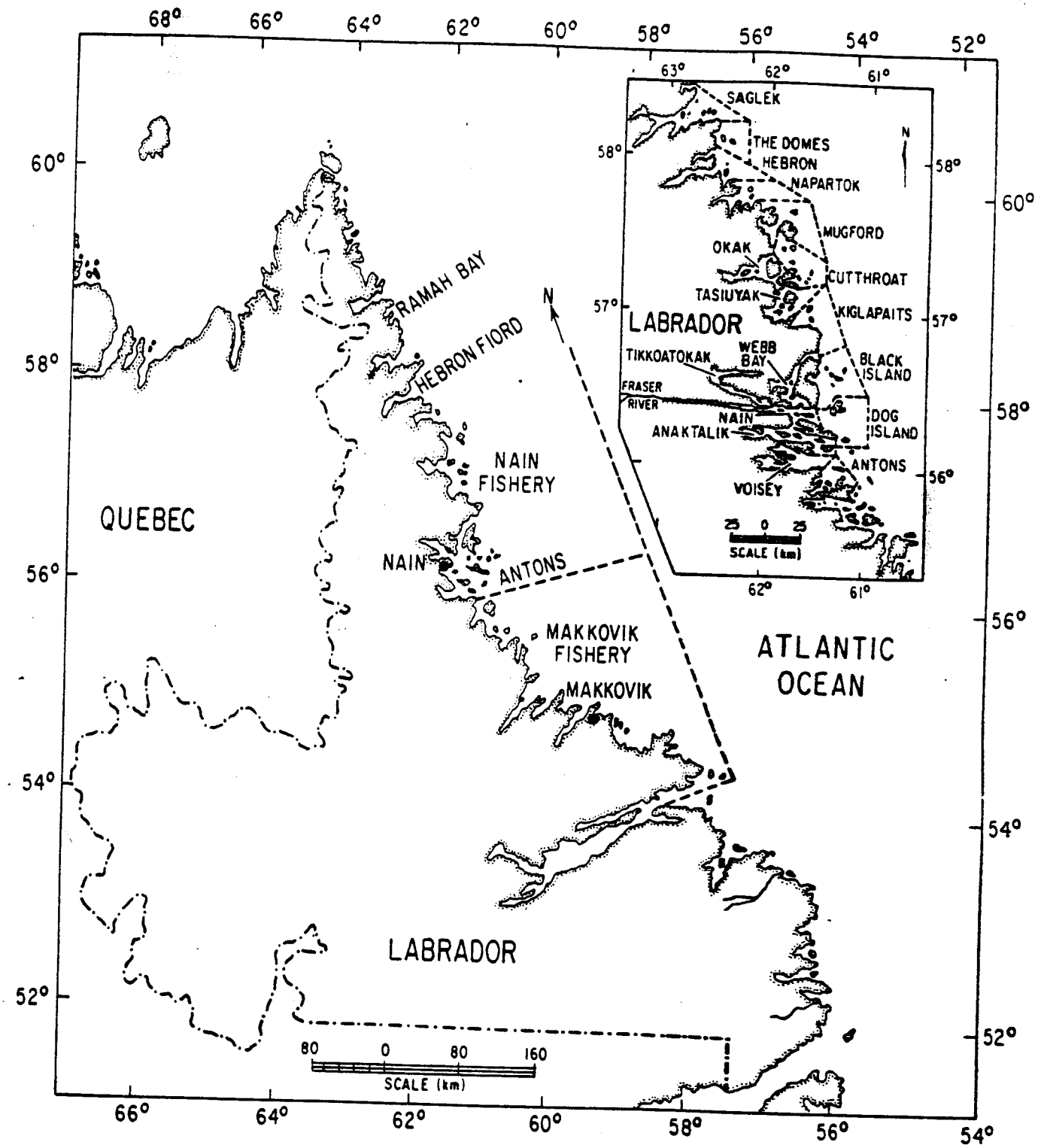

Fig. 1. Location of the Nain and Makkovik Fishing Regions in northern Labrador. Insert illustrates the location of subareas within the Nain Fishing Region.

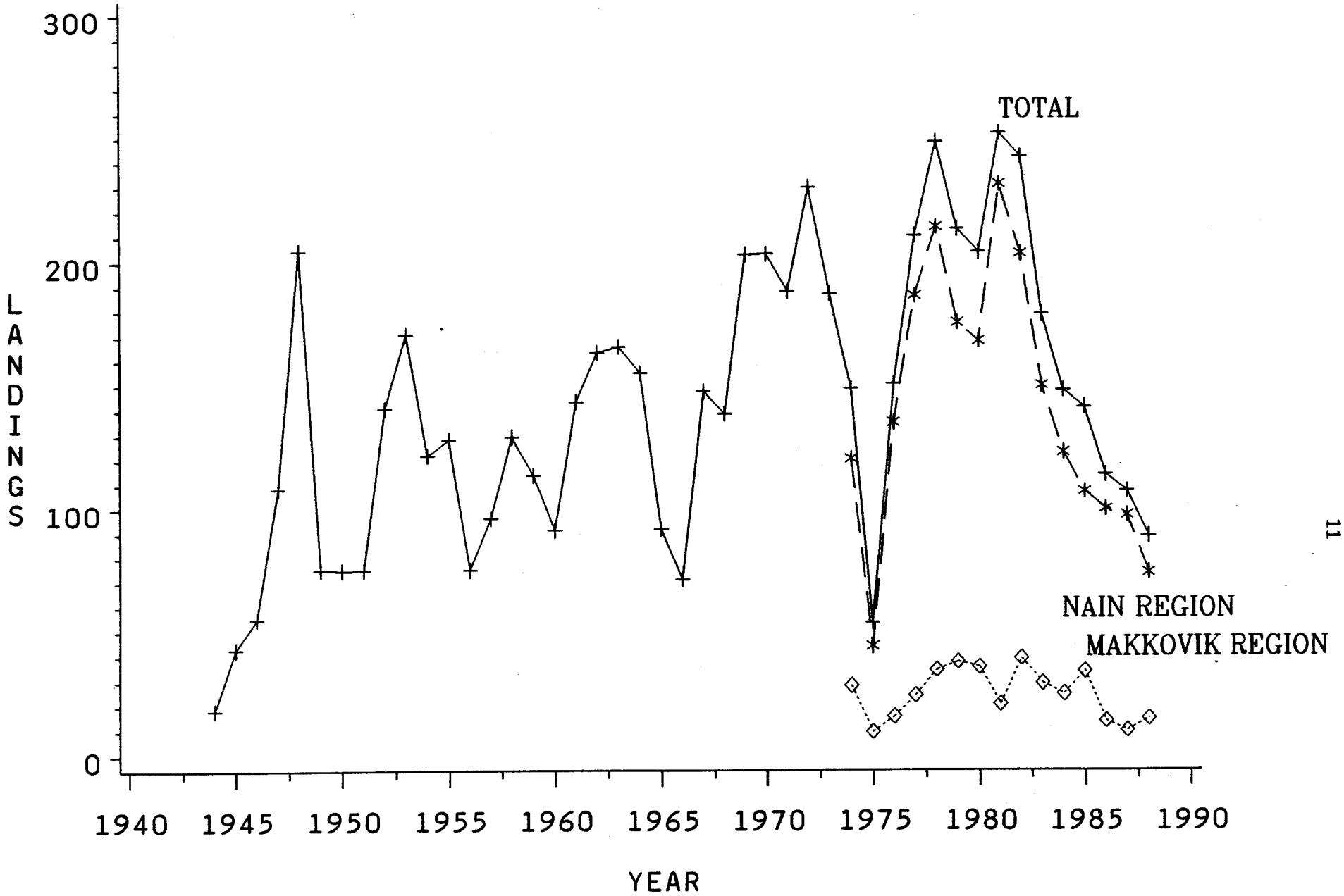

FIG. 2 SUMMARY OF NORTHERN LABRADOR ARCTIC CHARR LANDINGS (METRIC TONNES), 1944–1988

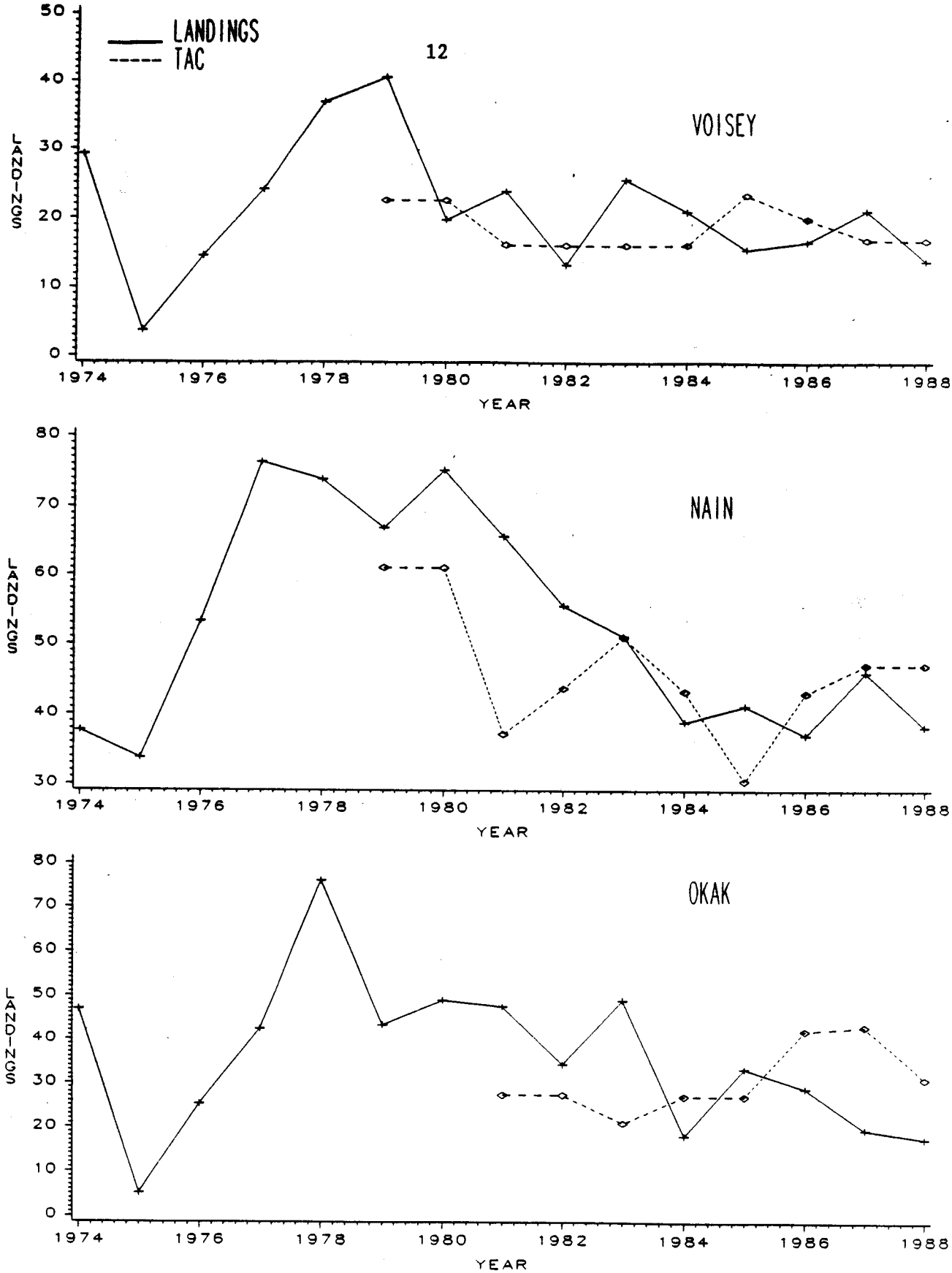

Fig. 3 Arctic charr landings (tonnes) and TAC from the Voisey, Nain, and Okak Stock Units. Note that the TAC in some years applied to only part of the unit. Refer to Tables for details.

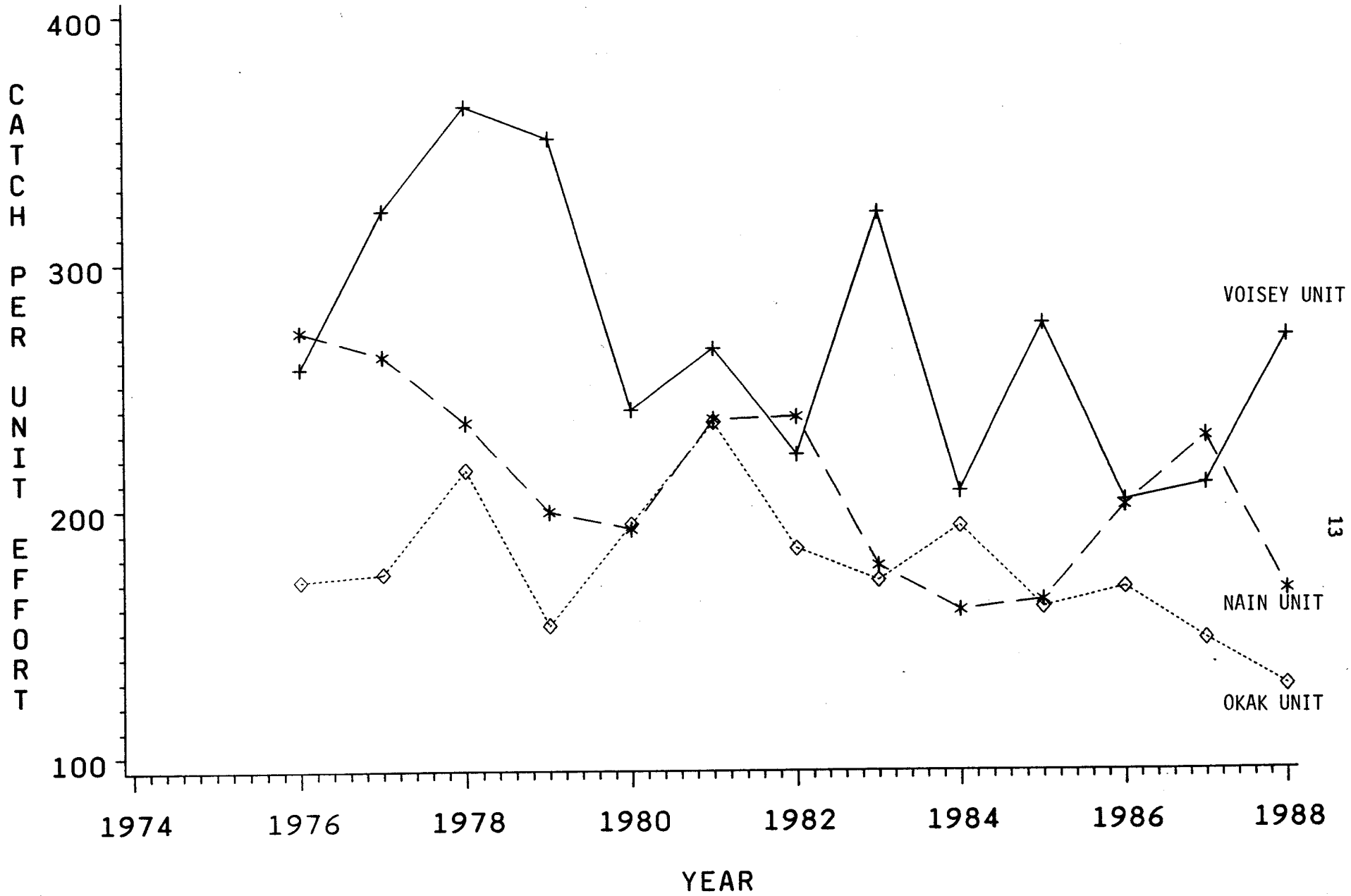

FIG. 4 TREND IN CATCH PER UNIT EFFORT OVER TIME FOR THE VOISEY, NAIN, AND OKAK STOCK UNITS

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1988.
SUMMARY OF CATCH, EFFORT AND SIZE COMPOSITION

AREA=DOG ISLAND

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)	2659	653	212	2039	386	1440	3048	1516
EFFORT (PERSON-WKS)	38	40	11	49	25	61	86	37
C/E (KG)	70	16	19	42	15	24	35	41
% > 2.3 KG			11	9	8	15	11	14

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	1105	6858	6666	6882	3289	16881	11735
EFFORT (PERSON-WKS)	38	62	66	62	32	86	88
C/E (KG)	29	111	101	111	103	196	133
% > 2.3 KG	7	8	10				

AREA=NAIN BAY

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)	12461		3119	8464				5450
EFFORT (PERSON-WKS)	37		10	28				29
C/E (KG)	337		312	302				188
% > 2.3 KG			16	15				4

	1982	1983	1984	1985	1986	1987	1988
QUOTAS		5000					
CATCH (KG)	85	532	1886	2667	6437	3806	5179
EFFORT (PERSON-WKS)	1	8	15	32	39	15	33
C/E (KG)	85	67	126	83	165	254	157
% > 2.3 KG		2	6				

AREA=TIKKOATOKAK BAY

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS						39500	39500	28500
CATCH (KG)	9960	27695	31568	39483	55061	37919	42131	28066
EFFORT (PERSON-WKS)	28	76	81	94	147	108	130	80
C/E (KG)	356	364	390	420	374	351	324	351
% > 2.3 KG			19	20	18	14	10	5

	1982	1983	1984	1985	1986	1987	1988
QUOTAS	35000	35000	26000	12500		15500	15500
CATCH (KG)	28283	16211	8618	6243	3841	3608	2240
EFFORT (PERSON-WKS)	75	65	43	24	16	12	12
C/E (KG)	377	249	200	260	240	301	187
% > 2.3 KG	7	8	5				

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1988.
SUMMARY OF CATCH, EFFORT AND SIZE COMPOSITION

AREA=ANTONS

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)	9135	3489	3172	2111	4011	19371	8460	7870
EFFORT (PERSON-WKS)	34	20	6	20	17	63	32	38
C/E (KG)	269	174	529	106	236	307	264	207
% > 2.3 KG			21	24	28	22	14	13

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	6191	23062	13099	14212	13589	8611	8460
EFFORT (PERSON-WKS)	24	63	82	51	67	55	29
C/E (KG)	258	366	160	279	203	157	292
% > 2.3 KG	12	9	7				

AREA=VOISEY BAY

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS						22500	22500	16100
CATCH (KG)	20045	238	12232	22488	33597	21880	11557	16325
EFFORT (PERSON-WKS)	64	2	45	56	85	59	52	53
C/E (KG)	313	119	272	402	395	371	222	308
% > 2.3 KG			42	35	34	32	17	16

	1982	1983	1984	1985	1986	1987	1988
QUOTAS	16100	16000	16000	23400			
CATCH (KG)	7688	2953	8113	1435	3065	12630	5577
EFFORT (PERSON-WKS)	38	17	24	6	22	54	26
C/E (KG)	202	174	338	239	139	234	215
% > 2.3 KG	17	17	16				

AREA=ANAKTAKLIK BAY

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS						21500	21500	8660
CATCH (KG)	7821	2548	14670	21604	13075	14913	8045	9157
EFFORT (PERSON-WKS)	28	10	45	63	55	76	53	32
C/E (KG)	279	255	326	343	238	196	152	286
% > 2.3 KG			36	38	27	20	12	10

	1982	1983	1984	1985	1986	1987	1988
QUOTAS	8660	11000	6100	8400		5200	5200
CATCH (KG)	10836	2359	3980	7477	180	2002	1075
EFFORT (PERSON-WKS)	27	24	34	39	7	18	12
C/E (KG)	401	98	117	192	26	111	90
% > 2.3 KG	11	11	12				

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1988.
SUMMARY OF CATCH, EFFORT AND SIZE COMPOSITION

AREA=WEBB BAY

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)	580	833	4550	2516	3472	3035	3008	8100
EFFORT (PERSON-WKS)	1	5	15	21	16	9	8	29
C/E (KG)	580	167	303	120	217	337	376	279
% > 2.3 KG			21	19	20	39	39	27

	1982	1983	1984	1985	1986	1987	1988
QUOTAS						8400	8400
CATCH (KG)	4607	15055	10476	5143	5890	8424	6041
EFFORT (PERSON-WKS)	27	56	43	35	34	27	33
C/E (KG)	171	269	244	147	173	312	183
% > 2.3 KG	11	5	7				

AREA=BLACK ISLAND

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)	4264	2101	2725	3389	2966	10632	20051	14413
EFFORT (PERSON-WKS)	60	62	48	65	81	92	130	94
C/E (KG)	71	34	57	52	37	116	154	153
% > 2.3 KG			8	10	14	7	6	7

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	11602	11028	7913	12750	17458	11151	12024
EFFORT (PERSON-WKS)	79	87	62	68	72	50	61
C/E (KG)	147	127	128	188	242	223	197
% > 2.3 KG	8	4	5				

AREA=KIGLAPAITS

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)	5131	1504	6089	5435	12097	17606	16543	21911
EFFORT (PERSON-WKS)	26	32	59	57	103	120	95	99
C/E (KG)	197	47	103	95	117	147	174	221
% > 2.3 KG			25	25	34	14	18	12

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	8326	20625	11431	6184	6983	1620	862
EFFORT (PERSON-WKS)	34	103	55	41	55	14	9
C/E (KG)	245	200	208	151	127	116	96
% > 2.3 KG	16	12	9				

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1988.
SUMMARY OF CATCH, EFFORT AND SIZE COMPOSITION

AREA=TASIUYAK

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)	1467		281		2280	1837	1137	
EFFORT (PERSON-WKS)	15		2		9	11	8	
C/E (KG)	98		141		253	167	142	
% > 2.3 KG			21		71	34	14	

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	1060	1259	3423	4724	6749	8997	2823
EFFORT (PERSON-WKS)	6	7	23	36	26	61	22
C/E (KG)	177	180	149	131	260	147	128
% > 2.3 KG	11	13	5				

AREA=MUGFORD

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)			1970	1374	1148	170	513	
EFFORT (PERSON-WKS)			15	9	7	2	5	
C/E (KG)			131	153	164	85	103	
% > 2.3 KG			30	36	32	16	15	

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)		15					
EFFORT (PERSON-WKS)		1					
C/E (KG)		15					
% > 2.3 KG							

AREA=OKAK BAY

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								27300
CATCH (KG)	34250	2354	17812	27592	36125	26171	17434	11049
EFFORT (PERSON-WKS)	105	15	52	107	104	123	65	46
C/E (KG)	326	157	343	258	347	213	268	240
% > 2.3 KG			29	26	18	11	8	10

	1982	1983	1984	1985	1986	1987	1988
QUOTAS	27300	21000	27000	27000		25200	22000
CATCH (KG)	9031	30732	13864	24746	20141	15695	12608
EFFORT (PERSON-WKS)	26	147	30	119	91	71	51
C/E (KG)	347	209	462	208	221	221	247
% > 2.3 KG	7	7	2				

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1988.
SUMMARY OF CATCH, EFFORT AND SIZE COMPOSITION

AREA=CUTTHROAT

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)	12641	2703	7526	15488	41146	17803	32397	37263
EFFORT (PERSON-WKS)	95	47	103	130	267	161	205	172
C/E (KG)	133	58	73	119	154	111	158	217
% > 2.3 KG			17	25	25	12	12	13

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	25699	19043	4570	8515	8756	3954	4842
EFFORT (PERSON-WKS)	164	164	65	106	89	70	89
C/E (KG)	157	116	70	80	98	56	54
% > 2.3 KG	15	10	7				

AREA=NAPARTOK

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)			28972	28039	8551	2486	752	291
EFFORT (PERSON-WKS)			124	126	50	33	11	3
C/E (KG)			234	223	171	75	68	97
% > 2.3 KG			14	22	20	16	13	12

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	16485						
EFFORT (PERSON-WKS)	60						
C/E (KG)	275						
% > 2.3 KG	8						

AREA=HEBRON FIORD

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)				5957			2915	39901
EFFORT (PERSON-WKS)				37				106
C/E (KG)				161				376
% > 2.3 KG				16			19	34

	1982	1983	1984	1985	1986	1987	1988
QUOTAS	29072		20000				
CATCH (KG)	37822		19531				543
EFFORT (PERSON-WKS)	98		112				6
C/E (KG)	386		174				91
% > 2.3 KG	23						

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1988.
SUMMARY OF CATCH, EFFORT AND SIZE COMPOSITION

AREA=DOMES

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)								5187
EFFORT (PERSON-WKS)								19
C/E (KG)								273
% > 2.3 KG								36

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	2643		976				
EFFORT (PERSON-WKS)	14		10				
C/E (KG)	189		98				
% > 2.3 KG	17						

AREA=SAGLEK FIORD

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)								24722
EFFORT (PERSON-WKS)								77
C/E (KG)								321
% > 2.3 KG								18

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	23791		5389				
EFFORT (PERSON-WKS)	118		40				
C/E (KG)	202		135				
% > 2.3 KG	7						

AREA=RAMAH

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)								
EFFORT (PERSON-WKS)								
C/E (KG)								
% > 2.3 KG								

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)	7758		3110				
EFFORT (PERSON-WKS)	26		25				
C/E (KG)	298		124				
% > 2.3 KG	20						

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1988.
SUMMARY OF CATCH, EFFORT AND SIZE COMPOSITION

AREA=NACHVAK

	1974	1975	1976	1977	1978	1979	1980	1981
QUOTAS								
CATCH (KG)								
EFFORT (PERSON-WKS)								
C/E (KG)								
% > 2.3 KG								

	1982	1983	1984	1985	1986	1987	1988
QUOTAS							
CATCH (KG)				6142	1808		
EFFORT (PERSON-WKS)				18	4		
C/E (KG)				341	452		
% > 2.3 KG							
TRAP NET CATCH					1777		

AREA=NAIN FISHERY

	1974	1975	1976	1977*	1978	1979	1980	1981
QUOTAS								
CATCH (KG)	120414	44118	134898	186165	213915	175263	167991	231221
EFFORT (PERSON-WKS)	531	309	616	863	966	918	880	914
C/E (KG)	227	143	219	216	221	191	191	253
% > 2.3 KG			24	25	25	17	12	16

	1982	1983	1984	1985	1986**	1987	1988
QUOTAS							
CATCH (KG)	203012	149732	123045	107120	99963	97379	74010
EFFORT (PERSON-WKS)	856	804	729	637	554	533	471
C/E (KG)	237	186	169	168	180	183	157
% > 2.3 KG	13	8	6				

* INCLUDES 186 KG UNACCOUNTED FOR BY AREA
** TOTAL ALSO INCLUDES TRAP NET CATCH FROM NACHVAK FIORD